THE MMSE IS NOT A DIAGNOSIS

CLINICAL DIAGNOSIS AND STAGING OF DEMENTIA

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Land Acknowledgement

I am presenting from Treaty 6 Territory and the Homeland of the Metis. I am an uninvited settler and respect the First Nations and Métis ancestors of this place.

FACULTY/PRESENTER DISCLOSURE

Faculty: Elizabeth Rhynold

Relationships with commercial interests:

- **Grants/Research Support:** Dr. John Wade Patient Safety Innovation Grant 2018
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- **Consulting Fees:** Not applicable
- **Other:** Not applicable

MITIGATING POTENTIAL BIAS

Not required

LEARNING OBJECTIVES

Review the DSM-5 criteria for the diagnosis of dementia

Recognize the classic clinical presentations for these dementia syndromes:

- Alzheimer's disease
- Microvascular dementia
- Lewy body and Parkinson's disease dementia
- Frontotemporal dementia

Name the clinical stage of dementia based on functional ability

THIS PRESENTATION IS LIKELY TO NEED FREQUENT REVIEW BECAUSE THE CLINICAL DIAGNOSIS OF DEMENTIA AND IMPLICATIONS FOR TREATMENT ARE CHANGING RAPIDLY RIGHT NOW – the information provided is current in the context of non-research and community care settings as of March 2024

COMPONENTS OF A DEMENTIA DESCRIPTION

When describing a person with cognitive impairment:

- Dementia yes/no (Mild Cognitive Impairment?)
- Clinical subtype
- Stage

What is your health discipline?

3

Nurse

0

Physician

2

Nurse practitioner

0

Occupational therapist

3

Social worker

1

Other (please comment in chat)

0

Non-regulated

3

Researcher

Do you consider it your role to say someone has dementia?

0	0	0
Option 1	Option 2	Option 3

How comfortable are you disclosing your opinion that someone has dementia?

0
Very comfortable

Somewhat comfortable

Not comfortable

0
Very uncomfortable

How comfortable is you team disclosing a diagnosis of dementia?

Very comfortable

Somewhat comfortable

Somewhat uncomfortable

Very uncomfortable

How comfortable is your team saying what type of dementia someone has?

0
Very comfortable

Somewhat comfortable

Somewhat uncomfortable

Very uncomfortable

How comfortable is your team saying what stage of dementia a person is in?

0
Very comfortable

Somewhat comfortable

Somewhat uncomfortable

Very uncomfortable

HOW IS A CLINICAL DIAGNOSIS OF DEMENTIA MADE?

Dementia is "an overall term for a set of symptoms that are caused by disorders affecting the brain." (www.Alzheimer.ca)

A history of a change in more than one domain of cognition

The changes in cognition are affecting functional independence

- Geriatric lens: To what degree are functional changes explained by other challenges (mobility, vision, dexterity, strength, endurance)

Reversible causes have been ruled out

DSM-5 CLASSIFICATION: THE NEUROCOGNITIVE DISORDERS

(Referred to in DSM-IV as "Dementia, Delirium, Amnestic, and Other Cognitive Disorders")

The neurocognitive disorders (NCDs) Major = dementia; Minor = mild cognitive impairment

Begins with delirium, followed by the syndromes of major NCD, mild NCD, and their etiological subtypes.

The major or mild NCD subtypes are NCD due to

- Alzheimer's disease;
- vascular NCD;
- NCD with Lewy bodies;
- NCD due to Parkinson's disease;
- frontotemporal NCD;
- NCD due to traumatic brain injury;
- NCD due to HIV infection;
- substance/medication-induced NCD;
- NCD due to Huntington's disease;
- NCD due to prion disease;
- NCD due to another medical condition;
- NCD due to multiple etiologies;
- unspecified NCD.

- The NCD category encompasses the group of disorders in which the primary clinical deficit is in cognitive function, and that are acquired rather than developmental.
- Although cognitive deficits are present in many if not all mental disorders (e.g., schizophrenia, bipolar disorders), only disorders whose core features are cognitive are included in the NCD category.
- The NCDs are those in which impaired cognition has not been present since birth or very early life, and thus represents a decline from a previously attained level of functioning

CDKTN 2012 – CLINICAL DIAGNOSIS

DEFINITIONS/DIAGNOSTIC CRITERIA PROBABLE/POSSIBLE ALZHEIMER'S DISEASE DEMENTIA (2012)

1. Interfere with the ability to function at work or at usual activities; and

2. Represent a decline from previous levels of functioning and performing; and

3. Are not explained by delirium or major psychiatric disorder;

4. Cognitive impairment is detected and diagnosed through a combination of
   (1) history-taking from the patient and a knowledgeable informant and
   (2) an objective cognitive assessment, either a "bedside" mental status examination or neuropsychological testing.

5. The cognitive or behavioral impairment involves a minimum of two of the following domains:
   a. Impaired ability to acquire and **remember** new information—symptoms include: repetitive questions or conversations, misplacing personal belongings, forgetting events or appointments, getting lost on a familiar route.
   b. Impaired **reasoning** and handling of complex tasks, poor **judgment**—symptoms include: poor understanding of safety risks, inability to manage finances, poor decision making ability, inability to plan complex or sequential activities.
   c. Impaired visuospatial abilities—symptoms include: inability to recognize faces or common objects or to find objects in direct view despite good visual acuity, inability to operate simple implements, or orient clothing to the body.
   d. Impaired language functions (speaking, reading, writing)—symptoms include: difficulty thinking of common words while speaking, hesitations; speech, spelling, and writing errors.
   e. Changes in personality, behavior, or comportment—symptoms include: uncharacteristic mood fluctuations such as agitation, impaired motivation, initiative, apathy, loss of drive, social withdrawal, decreased interest in previous activities, loss of empathy, compulsive or obsessive behaviors, socially unacceptable behaviors.

OCT. 2019 5TH CANADIAN CONSENSUS CONFERENCE ON DIAGNOSIS AND TREATMENT OF DEMENTIA

National Institute on Aging released 2018 biological definition of Alzheimer's disease (ATN criteria)

CCCDTD5 recommended using these criteria for observational and interventional research

CCCDTD5 discouraged the use of amyloid and tau imaging without memory decline outside of research settings.

CLINICAL DEMENTIA SYNDROMES

Sketching out some cartoons

DISEASES CAUSING DEMENTIA vs. CLINICAL DEMENTIA SYNDROMES

Diseases causing dementia are diagnosed by biomedical results correlated with symptoms

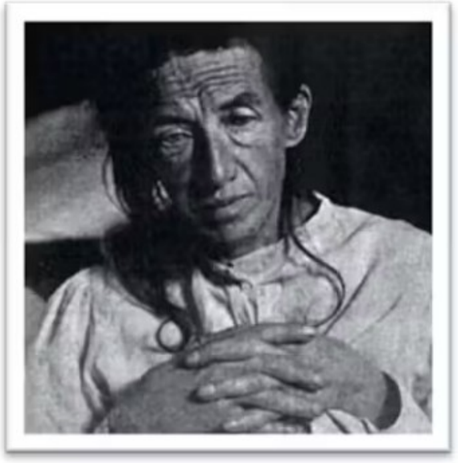
- In the past this was available at autopsy. Correlation between pathology and clinical diagnosis is poor.
- With biomarkers becoming available, there are research criteria to diagnose the disease that is causing the symptoms of dementia (imaging, CSF and plasma)
- It is very possible some of this will become clinically relevant soon, when we have disease modifying treatments

Clinical dementia syndromes are diagnosed recognizing patterns of symptoms.

Dementia syndromes are useful because:

- They give a name to symptoms and endorse that they are "real". Essential for education to make sense
- Can be helpful for symptom management (though you could treat individual syptoms without a "name")
- Help with planning and prognosis counselling

Alzheimer's disease



Pause to check our biases

Patients and families will all have a <u>different</u> picture of a person affected by Alzheimer's disease.

Applies to healthcare providers too. I have been told, by someone working at a responsive behaviour inpatient unit, "He can't have Alzheimer's, he can talk."

Age of onset 45 – 105!

Alzheimer's disease

The classic dementia with short term memory loss

- Classically memory is not cue-able. It's like instructions and facts never got into the vault.
- Can tell you detailed stories about the past, often quite fluently and on topic. The family will be rolling their eyes in the back ground. It's the third time you hear the same story within the 30 minute assessment that you realize there is a problem.
- Three step command instructions are forgotten. There is lots of searching even after a detailed orientation (i.e. to the ADL suite kitchen). This may not be as prominent in their own kitchen.

Alzheimer's disease

Early apraxias (inability to perform purposeful activities)

- Initially can't learn to use new appliances. Trouble may start with a new tv remote. A new clothes washer can be a nightmare. Or, dirty clothes in the drier.
- Later, using the remote to try to make a telephone call.
- Even later, not knowing what to do with a pen even though the hand can hold it and the eyes can see the paper. Families will often say, "I think their eye sight is going."
- May be able to instinctively make movements but may not be able to follow instructions (for example during therapy or physical exam)

Alzheimer's disease

Can't tell you what they would do because of word-finding and memory problems

- The practice of getting someone to describe how they organize their pills or pay the bills may identify **word-finding problems.** They may substitute words or not finish sentences.
- May not remember recent routines and will tell you what they did in the past

Classically no insight into deficits (not = denial or lying)

- Look for a mismatch between what they say and what they do. If you ask, "do you shower or bath?" They may say, "I shower every day". Do they look like they bath every day? I follow-up with, "Do you sponge bathe?"
- Ask the family about a timeline for changes in their standards with personal hygiene, cleaning, cooking (independent but not cooking for 12 people)

Alzheimer's disease

Physically can be very robust which can cause trouble! Gait can be entirely normal and sometimes impulsive.

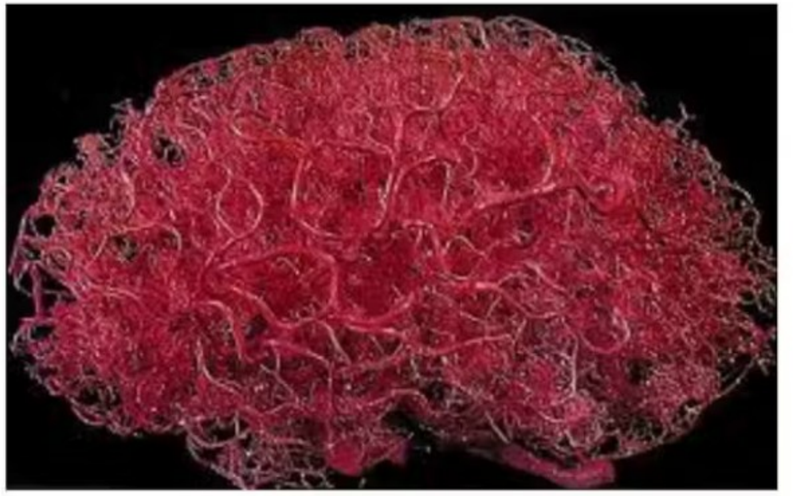
Often not on any pills so the medication review may be futile. Also, dementia medication may be first medication and so the functional gap may be unrecognized.

Should definitely not be driving if ADL's impacted and likely should not be driving if 2 or more IADL's impacted.

MICROVASCULAR DEMENTIA

Classically – under-recognized dementia. Often functional impairments aer under-recognized or attributed to other factors.

Often on a million pills, have a history of heart disease (4 vessel bypass and strokes and peripheral vascular disease).



Microvascular dementia

Memory may be pretty good

- Can remember your name and instructions so present surprisingly well
- If recall impaired, often comes back with cue = retrieval impairment

Physically may have some balance impairment and wide-based gait. Can complicate how much the cognitive symptoms are causing the functional decline.

Physically able but apathetic = "doesn't do anything"

- Early on, in assessment settings may be able to do things very independently
- Inquire about discrepancies between what they physically can do and what they do, focusing on things that are causing safety concerns and neglect

Microvascular dementia

Impaired abstract thinking to problem solve around things they haven't experienced

- "What could happen if you fell?" Response: "I haven't fallen in years." "But if you did, what bad things could happen?" Response: "That won't happen. I'm very careful." or Response: "When I was a girl I feel off my bike and broke my arm, so I could break my arm."
- Love the pill sorting task when extra pills or insufficient pills are in the bottles. Classic Alzheimer's may just keep on filling until the pills are gone. Classic microvascular may just stall, be unable to proceed.

Lewy body dementia

Looks like the dementia people with Parkinson's often get years after diagnosis. This is a spectrum of how the pathological changes spread through the brain.

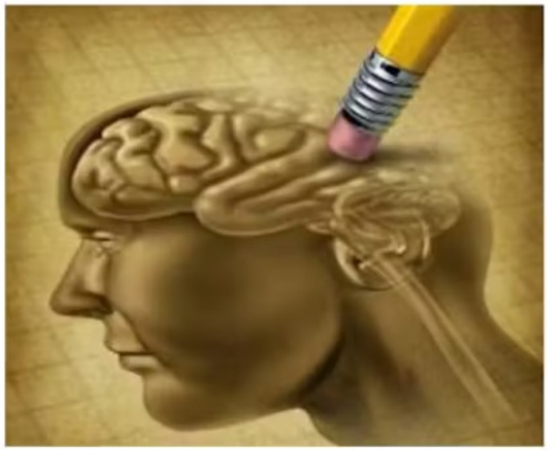
- If seeing someone with Parkinson's for function and safety at home – think about under-recognized cognitive problems
- If cognitive symptoms within a year of motor symptoms it is clinically called Lewy Body Dementia

Function impacted by Parkinsonism

- May or may not have tremor
- Significant slowing (book for longer appointments!)
- High falls risk

Hallucinations probably don't impact function

- May mention casually in passing!



Lewy body dementia

Classic cognitive changes:

- Have dramatic good days and bad days or times of day
- Often cognitive slowing
  - With enough time the person may complete a task
- Big problems with attention
  - Getting them to tell you what they do will not detect the problems with attention that actually demonstrating will identify
- Visuospatial impairment
  - Get lost finding washroom on inpatient unit or even in own home.
  - Tiny clock and handwriting!
- Driving scary because of poor upward gaze and inattention and slowing

Frontotemporal dementia

YOUNG!!! Without a lot of other contributing comorbities.

May have seen psychiatry first for late onset mania or impulsivity.

Behavioral variant

- Functionally surprisingly good, memory pretty good, may have apathy – if not, we have trouble!
- May be very disinhibited and unsafe in assessments so be ready to intervene quickly.
- May be emotionally volatile or have outbursts of emotion (crying and laughing) inappropriately during assessment.

Frontotemporal dementia

- **Behavioral variant: frontal release signs = primitive reflexes**
  - May make repetitive actions (perseverating).
  - May not release a hand-shake. "Grasp reflex"
  - May have food fads!
- Driving scary due to impulsiveness and disinhibition.

- **Note:** There are a lot of people who develop symptoms including disinhibition, apathy, emotional lability, irritability, risky judgement. Focus on earliest symptoms
  - If they have other areas of cognitive decline (memory, praxis, visual spatial) early on frontotemporal disease pathology is much less likely and AD or vascular pathology is more likely
  - Diagnosis of exclusion – no neuro comorbidities, multiple early frontal release signs

FRONTOTEMPORAL DEMENTIA

Primary progressive aphasias

- Non-fluent often ONLY impacts language early on so functionally do MUCH BETTER than their scores suggest.
- This is the classic dementia for watching what people can do rather than what the say they can do. The do VERY poorly on cognitive testing but can be completely functionally intact for things that don't require language!
- If available, speech language therapy can be helpful for assessments do determine if other domains of cognition are impacted but also for education on supportive conversation techniques and treatments early on

DEMENTIA STEREOTYPES

Alzheimer's Disease

Walks in without a care in the world and tries their hardest.

Microvascular Dementia

Looks older than stated age and a little unkempt. Does pretty well but family says doesn't do anything at home.

Lewy Body Dementia

Very slow and stiff with no facial expression. Stains on clothes. Needs a lot of redirecting on a bad day.

Frontotemporal Dementia

Very angry or laughing inappropriately while doing fairly well until questions requiring insight.

Primary Progressive Aphasia

Terrible screening scores but look great and functionally great!

DEMENTIA STAGING

Mild Cognitive Impairment (MCI) is NOT dementia

- Subjective and objective cognitive changes before there is any loss of functional independence
- Mild Behavioral Impairment – Changes in gait and balance before cognitive symptoms diagnostic for dementia
- Motoric Cognitive Risk Syndrome – Neuropsychological symptoms before cognitive symptoms diagnostic for dementia

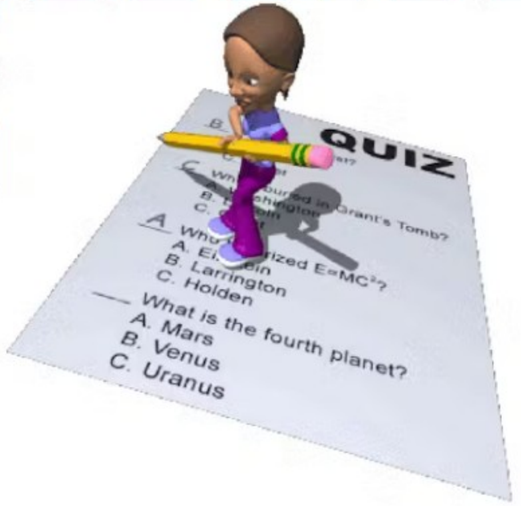
Mild (Early*) – IADLs impacted. Independent with personal care

Moderate (Middle) – ADLs impacted

Severe (Late) – unable to do any personal care

End-of-life – physiological consequences of terminal dementia symptoms make death likely soon

* I prefer not to use "early" because it gets confused with early (young) onset dementia



QUIZ TIME!!

1

65 year old woman, thin, energetic, always wants to go to for drives with her husband

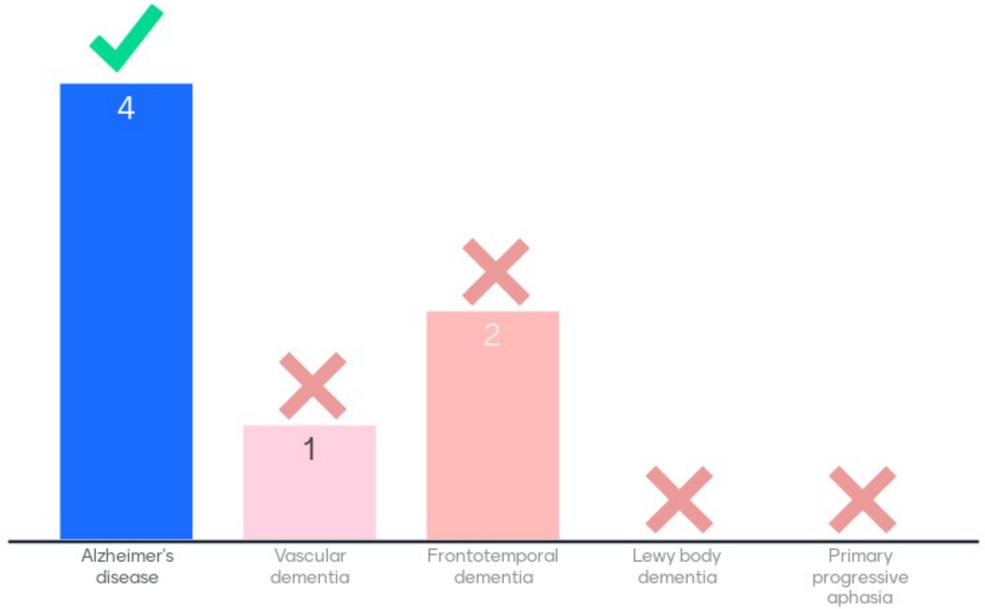
States everything is good. Husband says losing some weight (so is he!)

No medications

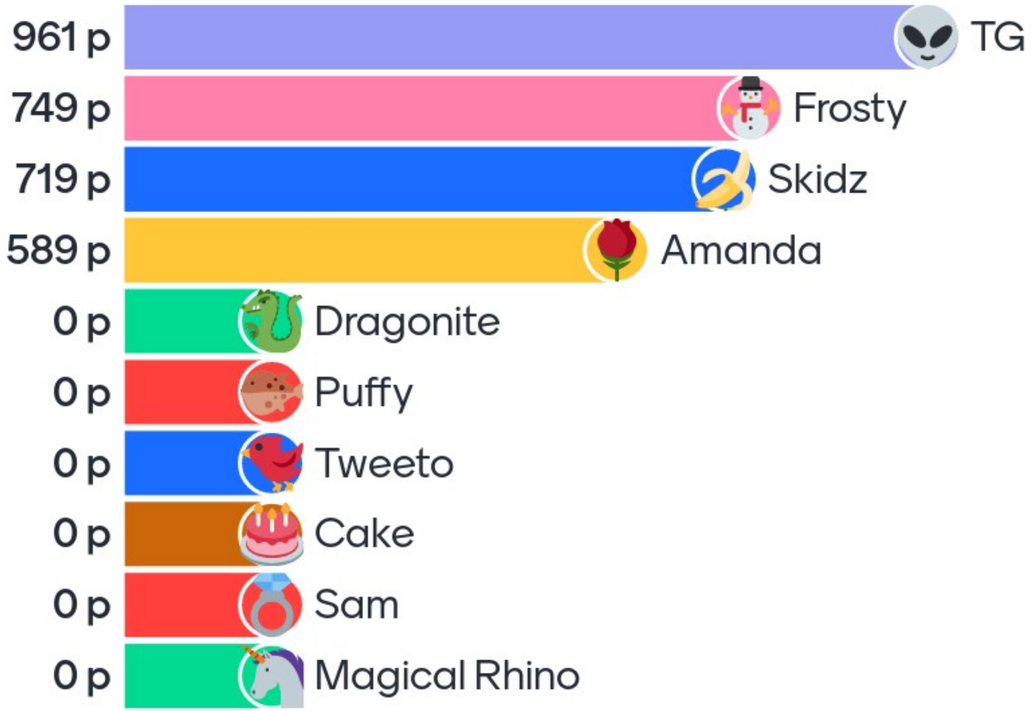
MMSE 20/30

Mentimeter

What is the most likely etiology of cognitive disorder?



Leaderboard



ALZHEIMER'S DISEASE

65 year old woman, thin, energetic, always wants to go to for drives with her husband

States everything is good. Husband says losing some weight (so is he!)

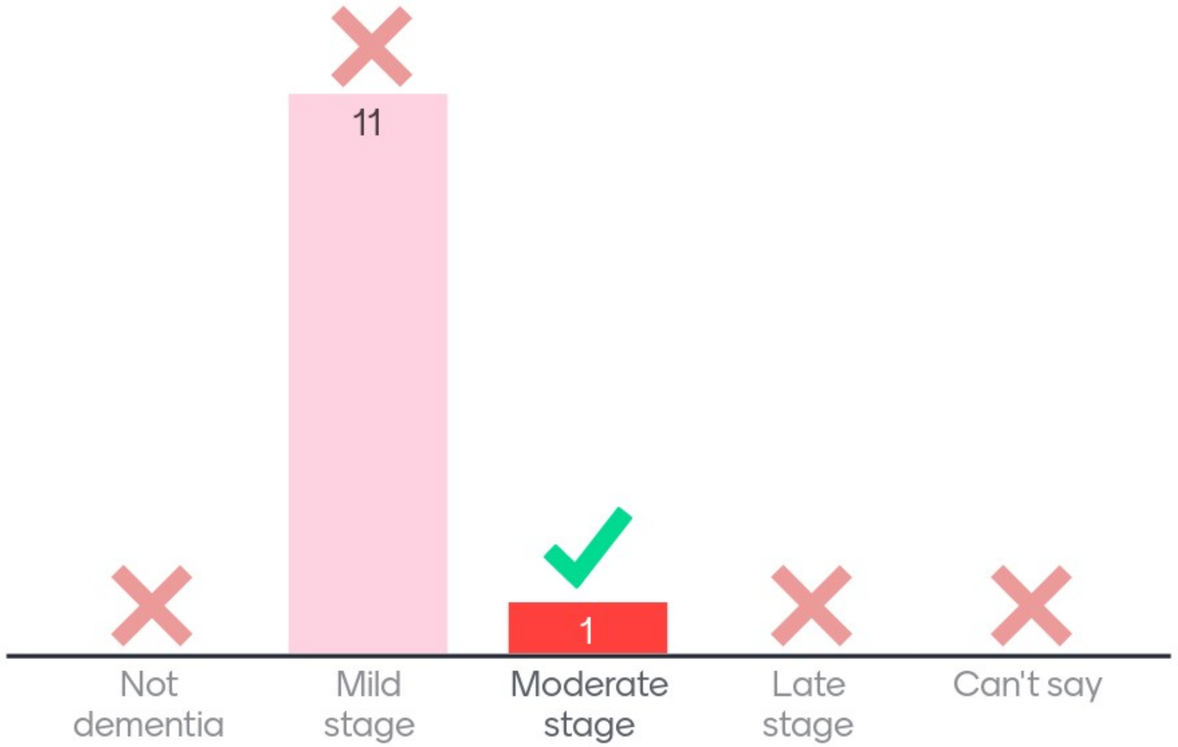
No medications

MMSE 20/30

Functional inquiry

- Husband is doing more cooking
- Patient no longer doing the banking
- Appearance and hygiene unchanged
- Reminders to put on clean clothes
- Reminders to initiate shower then independent

AT LEAST what stage of dementia ?



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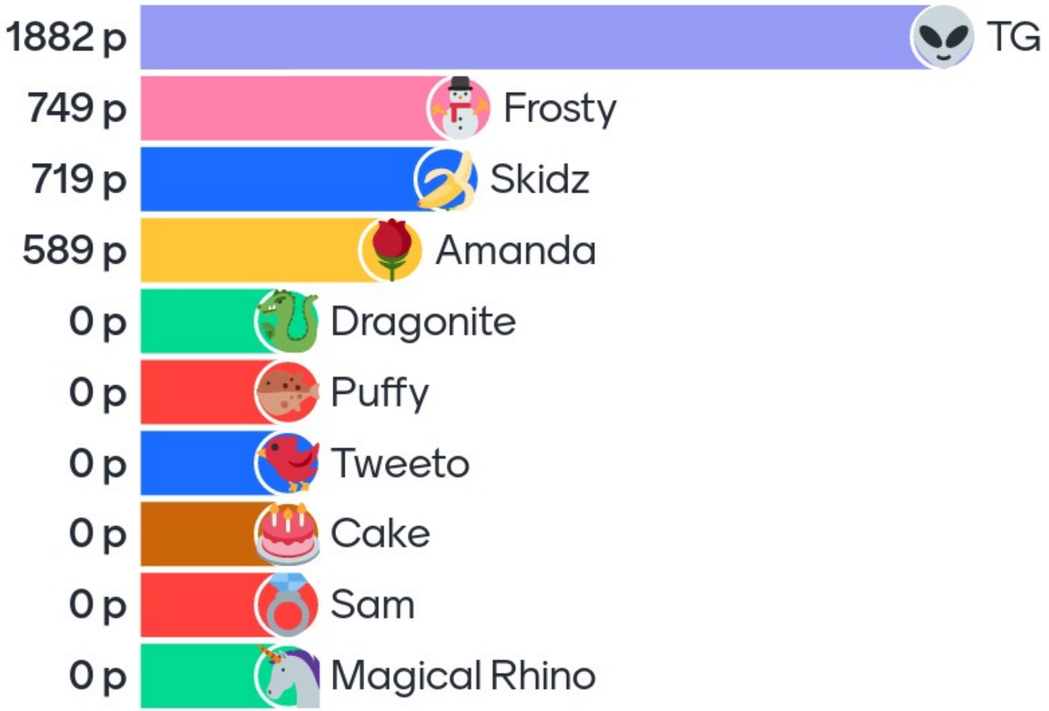


2

65 year old man, thin, energetic, always driving his wife around and has had 3 speeding tickets

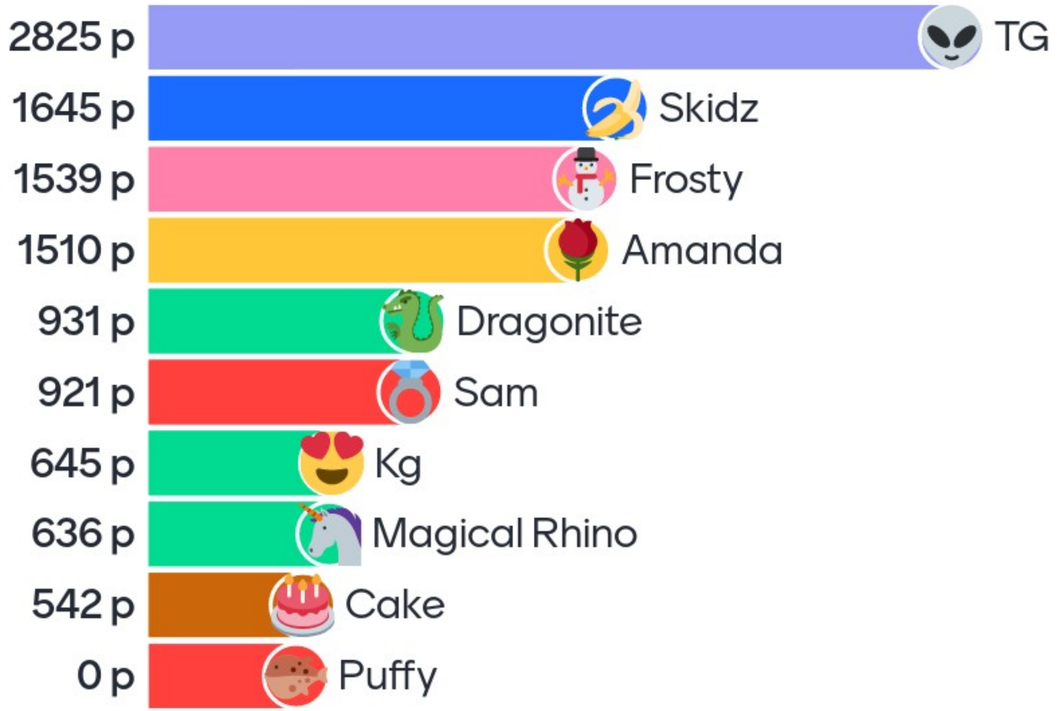
States everything is good. Wife says she is gaining weight because she is so stressed by his inappropriate jokes etc.

No medications

MMSE 29/30

What is the most likely etiology of cognitive disorder?

Leaderboard



FRONTOTEMPORAL - BEHAVIORAL

65 year old man, thin, energetic, always driving his wife around and has had 3 speeding tickets

States everything is good. Wife says she is gaining weight because she is so stressed by his inappropriate jokes etc.

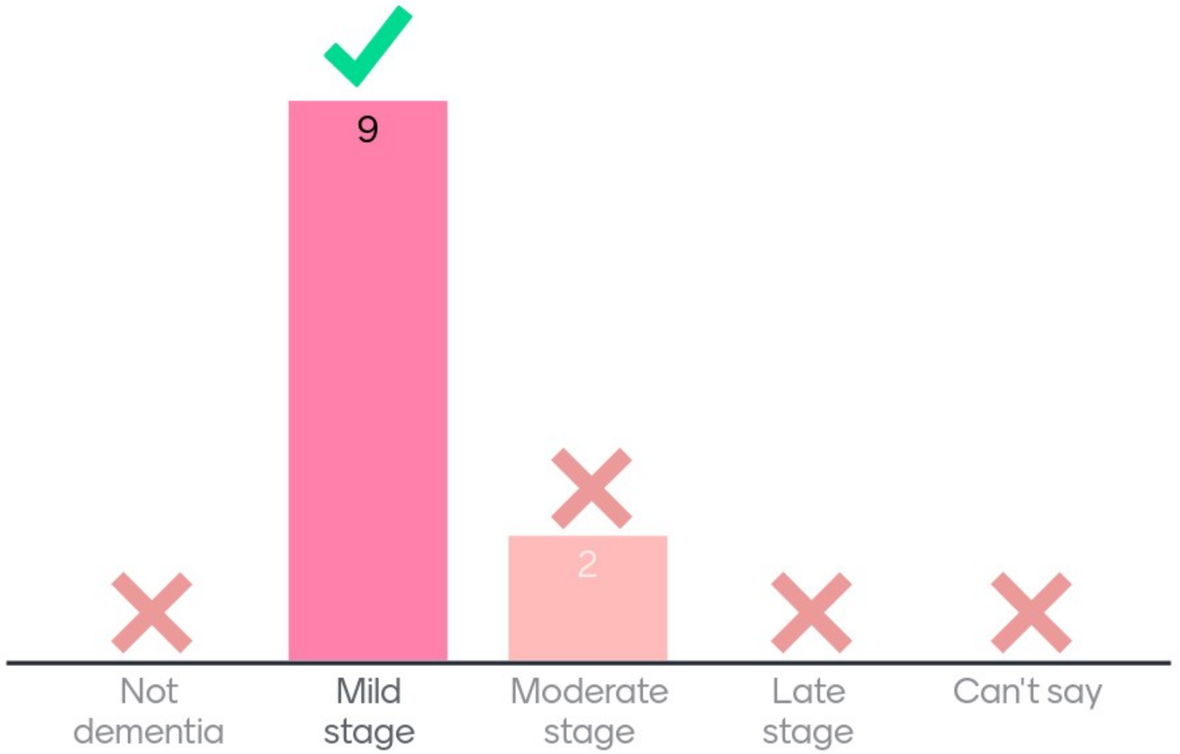
No medications

MMSE 29/30

Functional inquiry

- Taking things apart to fix them but can't finish projects he could have in the past
- Not able to manage finances, overspending
- Maybe a bit obsessive about showering but no change in hygiene
- Normal attention to grooming

AT LEAST what stage of dementia ?



Leaderboard

3

65 year old man, mildly obese

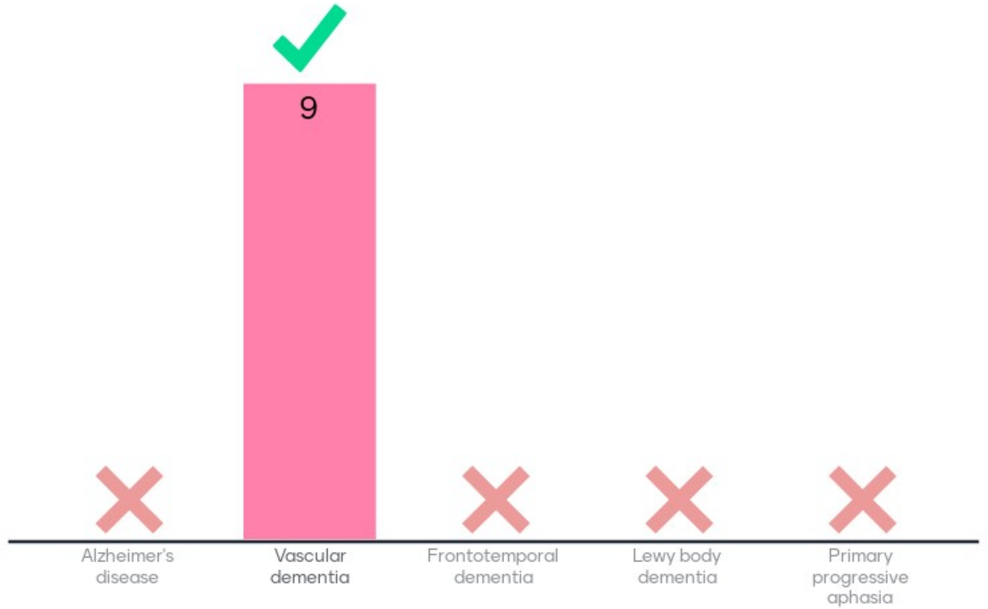
HTN, CABGx4, angina ongoing

States everything is good. Wife is losing weight and looks exhausted

Metoprolol 100 bid, nitro patch 0.6 on 12/ off 12, ramipril 5 daily

MMSE 20/30

What is the most likely etiology of cognitive disorder?



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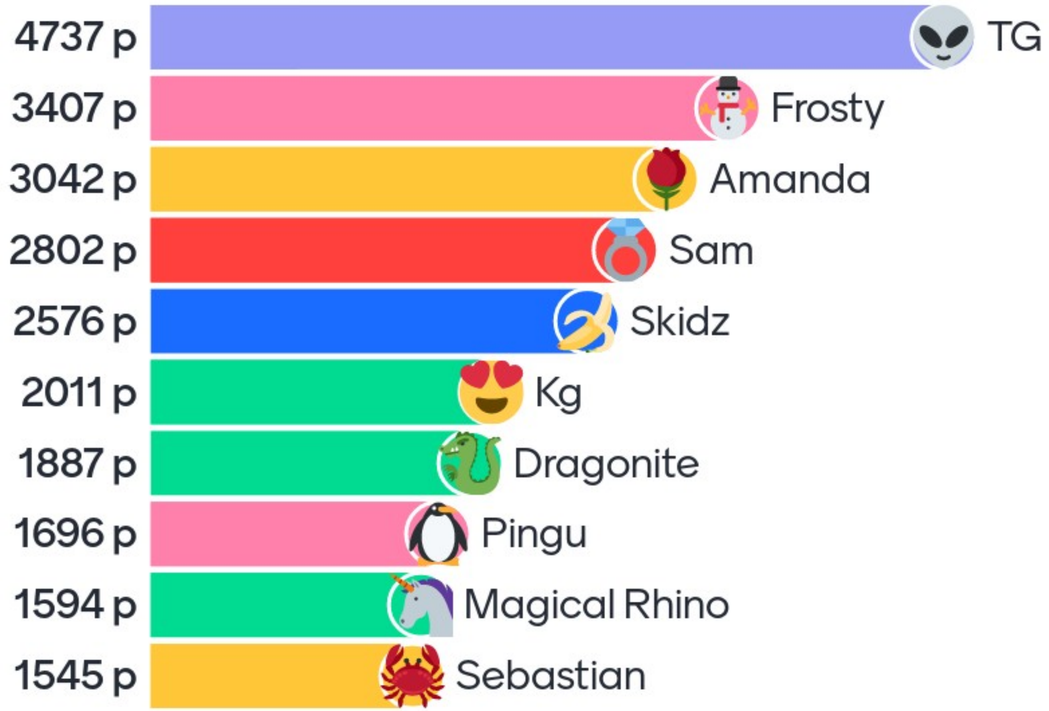


VASCULAR DEMENTIA

65 year old man, mildly obese

HTN, CABGx4, angina ongoing

States everything is good. Wife is losing weight and looks exhausted

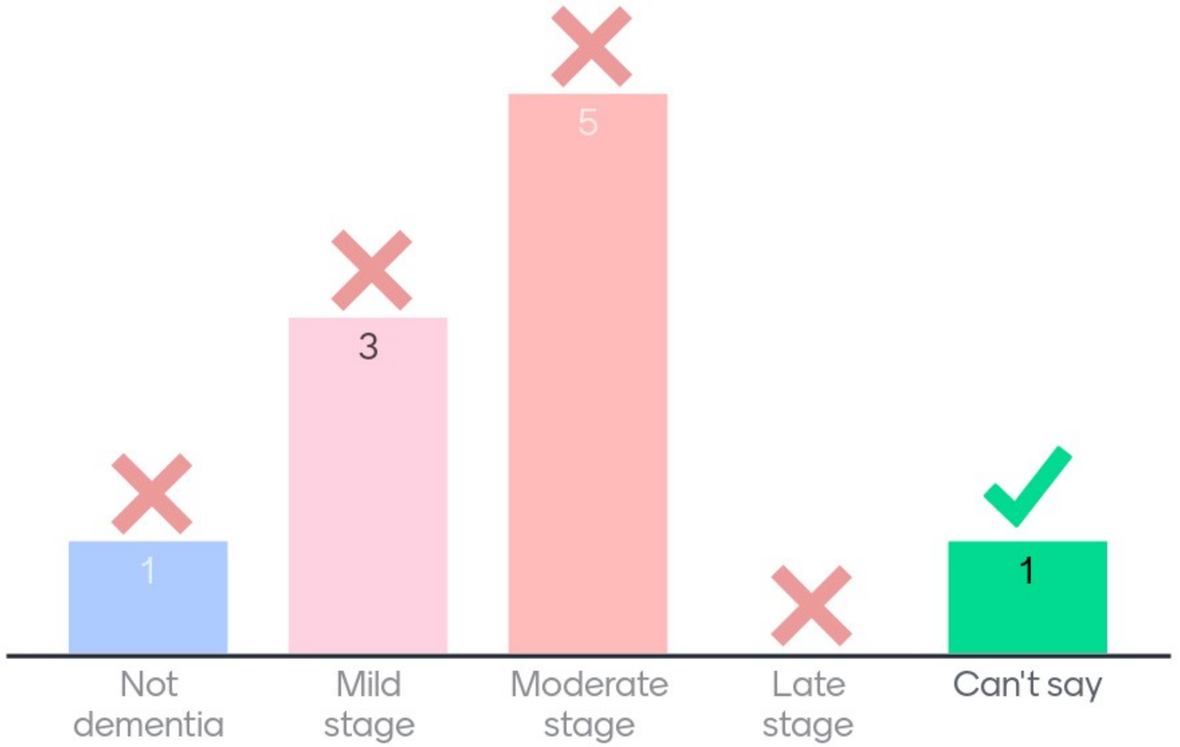
Metoprolol 100 bid, nitro patch 0.6 on 12/ off 12, ramipril 5 daily

MMSE 20/30

Functional inquiry

- Angina limiting his yard work
- Not initiating vacuuming
- Exhausted by shower/bath and sponge bathing
- Help with shoes/socks

AT LEAST what stage of dementia ?



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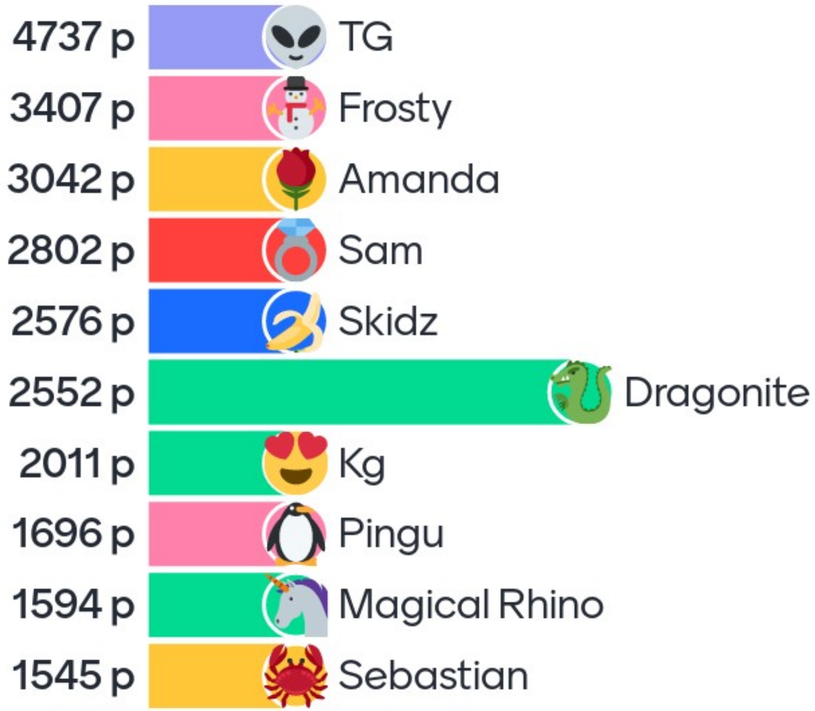


4

65 year old woman, thin, quiet

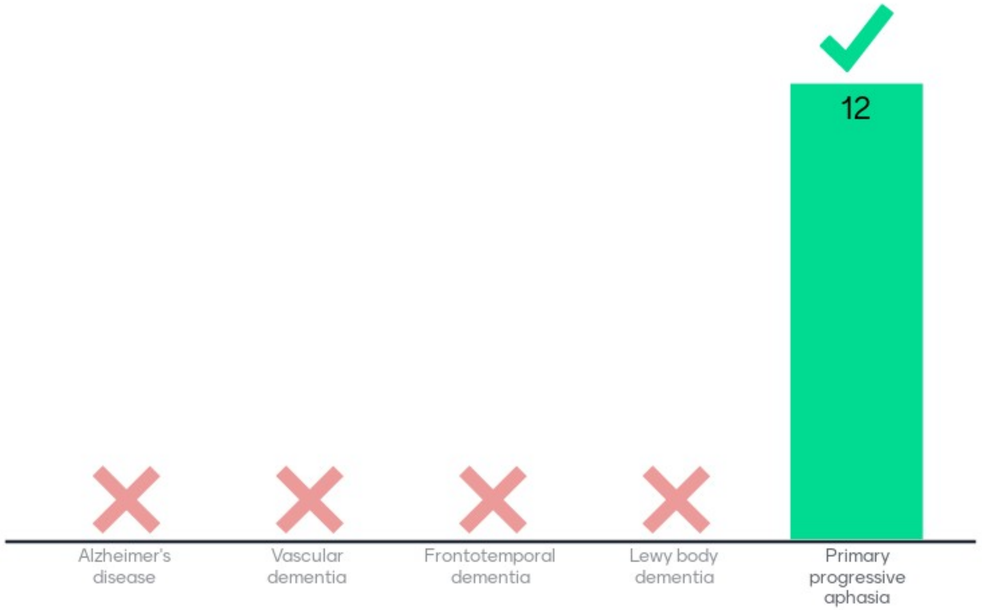
Husband states she can do everything at home but wonders if she had a stroke because she can't talk. Weight stable

No medications

MMSE 8/30

Mentimeter

What is the most likely etiology of cognitive disorder?



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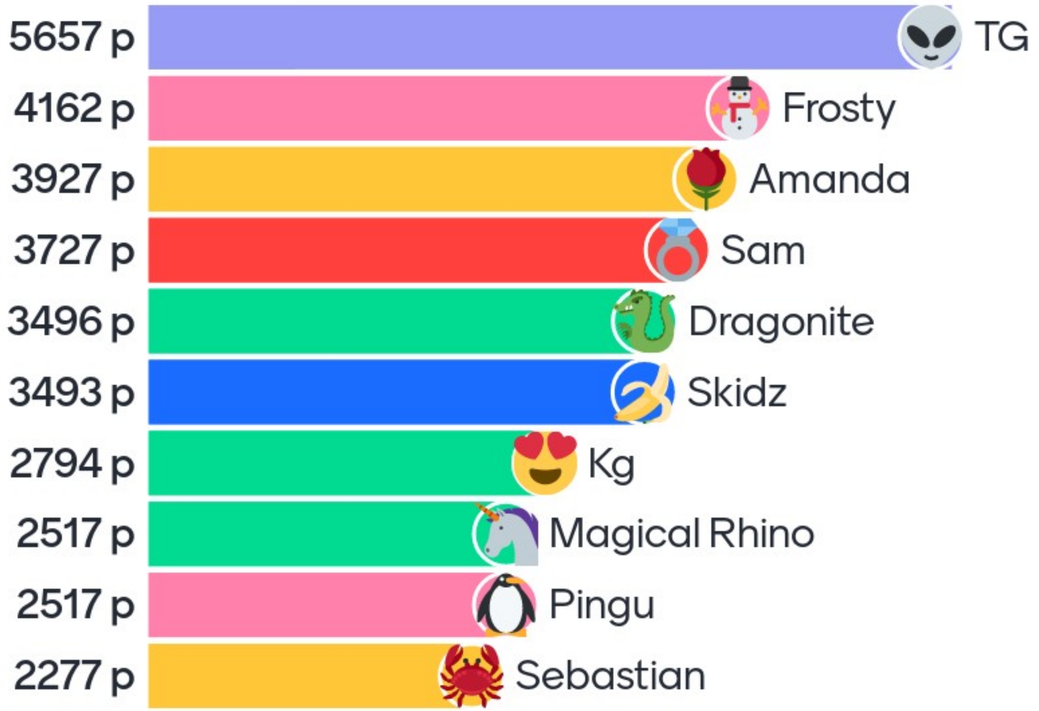


PRIMARY PROGRESSIVE APHASIA

65 year old woman, thin, quiet

Husband states she can do everything at home but wonders if she had a stroke because she can't talk. Weight stable

No medications

MMSE 8/30

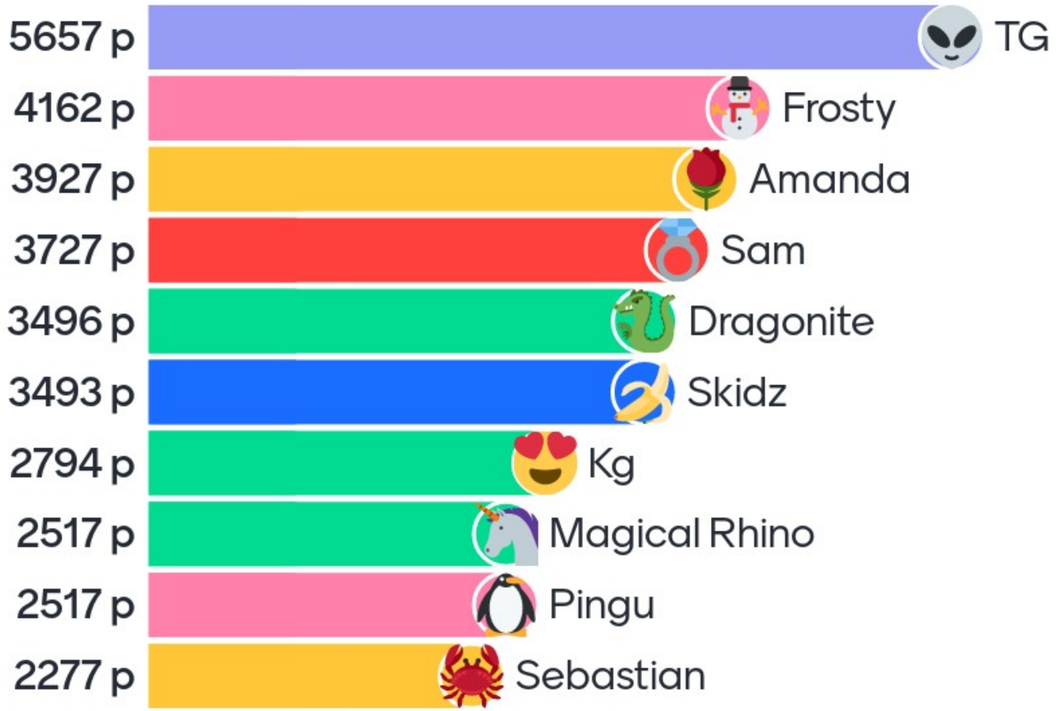
Functional inquiry

- Difficulty at the grocery store till
- Can't use the telephone
- Still doing ALL the household tasks
- No change in personal appearance/hygiene

Mentimeter

AT LEAST what stage of dementia ?

Leaderboard



5

75 year old man, thin, slow and kyphotic

Seems depressed and seeing things that aren't there. Daughter states losing weight and falling

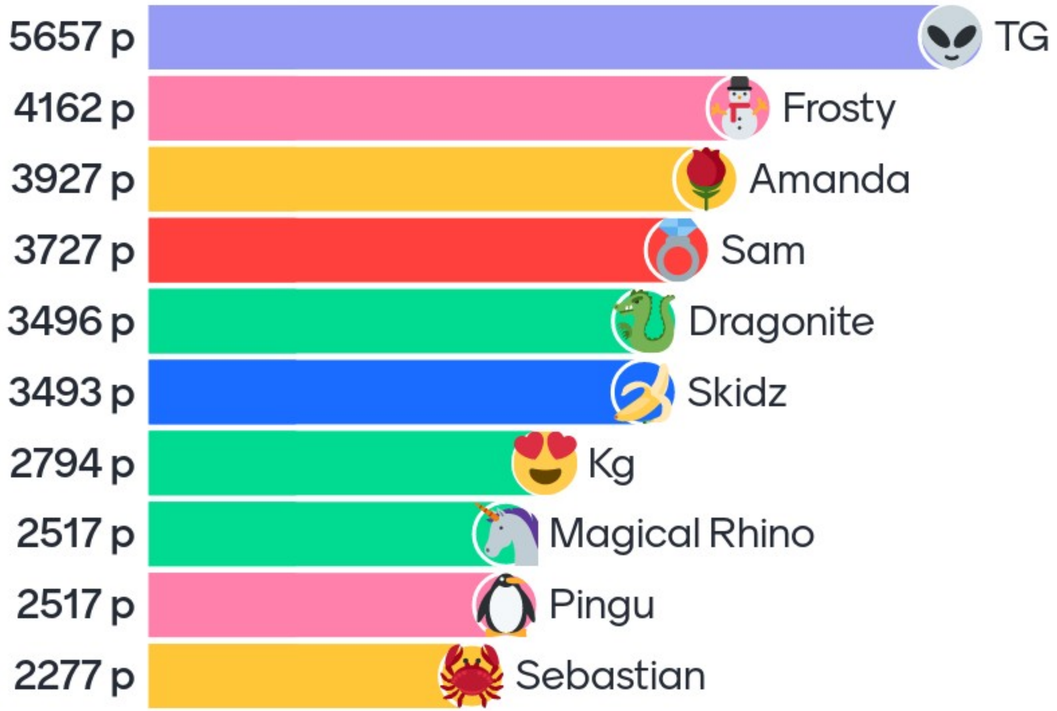
ASA 81, eye drops, pantoloc daily, domperidone tid

MMSE 20/30

Mentimeter

What is the most likely etiology of cognitive disorder?

Leaderboard



LEWY BODY DEMENTIA

75 year old man, thin, slow and kyphotic

Seems depressed and seeing things that aren't there. Daughter states losing weight and falling

ASA 81, eye drops, pantoloc daily, domperidone tid

MMSE 20/30

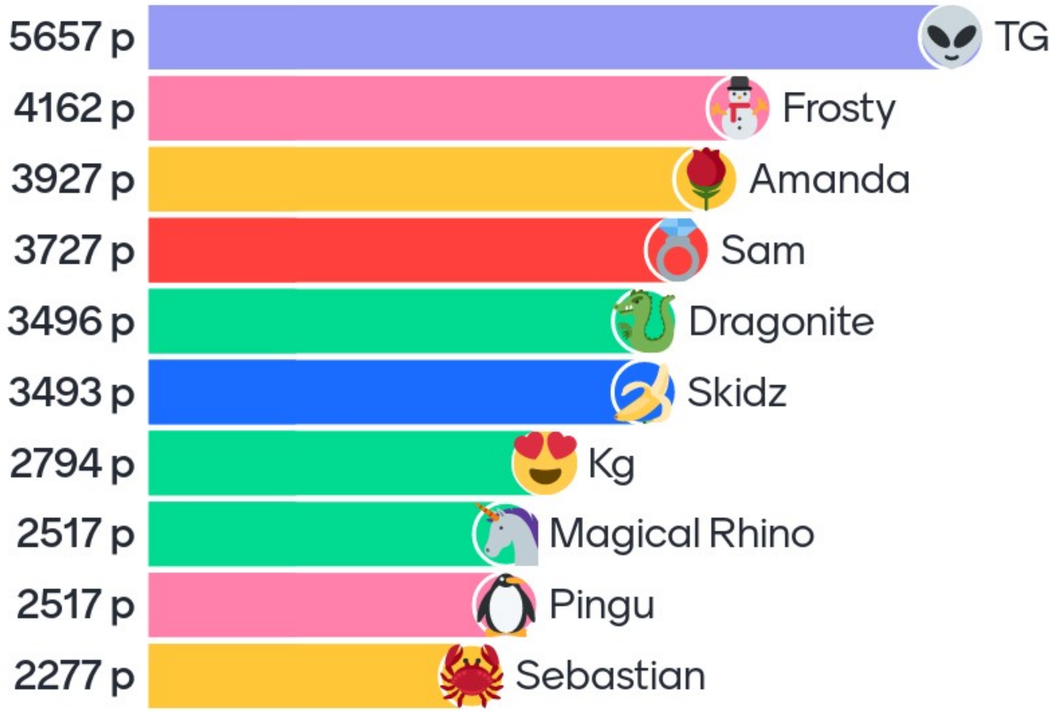
Functional inquiry

- Can't complete any tasks at home due to risk of falling
- Unable to process steps for dressing
- Requires hands on assistance for all bathing/grooming
- Lack of awareness of incontinence

Mentimeter

AT LEAST what stage of dementia ?

Leaderboard



DEMENTIA STEREOTYPES

Alzheimer's Disease

Walks in without a care in the world and tries their hardest.

Microvascular Dementia

Looks older than stated age and a little unkempt. Does pretty well but family says doesn't do anything at home.

Lewy Body Dementia

Very slow and stiff with no facial expression. Stains on clothes. Needs a lot of redirecting on a bad day.

Frontotemporal Dementia

Very angry or laughing inappropriately while doing fairly well until questions requiring insight.

Primary Progressive Aphasia

Terrible screening scores but look great and functionally great!

DESCRIBING DEMENTIA

What is helpful initially and during follow-up

WHEN IN DOUBT – ETIOLOGY TIPS

- Currently, the etiology (the disease underlying the cognitive symptoms) will not change the clinical management
- Confidently state the dementia diagnosis.
- Describe what you know of progression timelines:
  - Onset of symptoms preceding you (may be well before formal diagnosis)
  - Any step-wise decline especially if it was associated with documented vascular events or episodes of delirium
- Describe the prominent symptoms (cognitive and other associated mobility/neuropsychiatric) and areas of strength
- Note if there are reasons why cognitive testing scores either over or under correlate with functional difficulties

WHEN IN DOUBT - TIPS

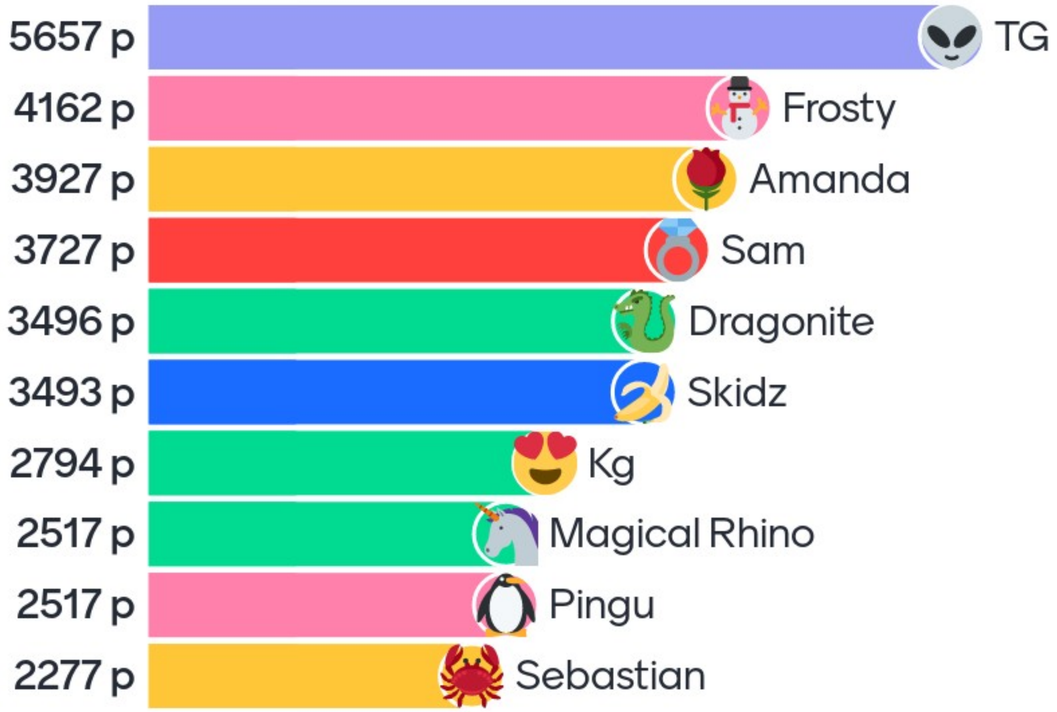
- In autopsy studies clinical diagnoses of non-Alzheimer's disease (Lewy Body and Frontotemportal) often have Alzheimer-type pathology so you are almost never wrong saying, "I think _____ but I can't rule out some Alzheimer type brain changes"
- Microvascular changes are commonly found on imaging and at autopsy. If there has been imaging, with subcortical white matter changes but the clinical picture is very "Alzheimer's like" it is very fair to said "the significance of the subcortical changes likely resulting from microvascular changes is unclear"

82 YEAR OLD WOMAN BROUGHT TO CLINIC BY THE DAUGHTER

- Daughter lives in Calgary. She was called by her concerned second cousin because her mom didn't recognize her and was looking disheveled when she recently saw her.
- When the daughter got back to town she was shocked at the change in her mom!
- The mother has been living in a seniors housing apartment with a common dining room since shortly after her husband's death. She's had a cleaner for years.
- It is evident she hasn't been taking her medications correctly. At some stage they have been blister packed. When she asked, the pharmacist said there were concerns for over a year.
- She is doing all of her personal care independently. She says she showers but there are all sorts of belongings in her tub. Her clothes are soiled and she has been wearing the same thing for days in a row. Her hair dye has grown out many inches which is a big change. And she doesn't seem to be wearing make-up any more.
- The daughter wonders if she has suddenly developed Alzheimer's disease or dementia?

Are there red flags to suggest the need for urgent specialty referral, imaging or delirium work up?

Leaderboard



"RAPID ONSET" AND THE MODERATE STAGE

The moderate stage of dementia is a common time for people to seek assessment or reassessment

- Mild cognitive symptoms and the transfer of household activities to others may be "expected at their age" by some patients and families
- Entering the moderate stage, difficulties become more obvious because personal hygiene changes. Fewer families will naturally get involved supporting personal care

- This can be a time of a care crisis when family "can't do this" or the person lives alone and there is evidence of personal neglect

- Often incorrectly described as "rapid onset" when the history clarifies the person has been progressing through the mild stage for the last couple years (unless there was an event like delirium that really accelerated progression through the stages)
- Important to caution that the rate of progression accelerates in the moderate stage

75 YEAR OLD RECENTLY RETIRED SUCCESSFUL BUSINESS MAN

Presents to clinic when the family is distressed the wife can no longer help him transfer. Has previously been described as having Alzheimer's disease. Wife has gradually been doing more and more. Children from away wonder if he has had a stroke or Parkinson's disease.

Incontinence is hard to manage now that he is very rigid with transfers. Movements are very slowed

He produces very little spontaneous speech. Does not initiate anything for himself

Responding to stimuli that are not there – doesn't seem distressing

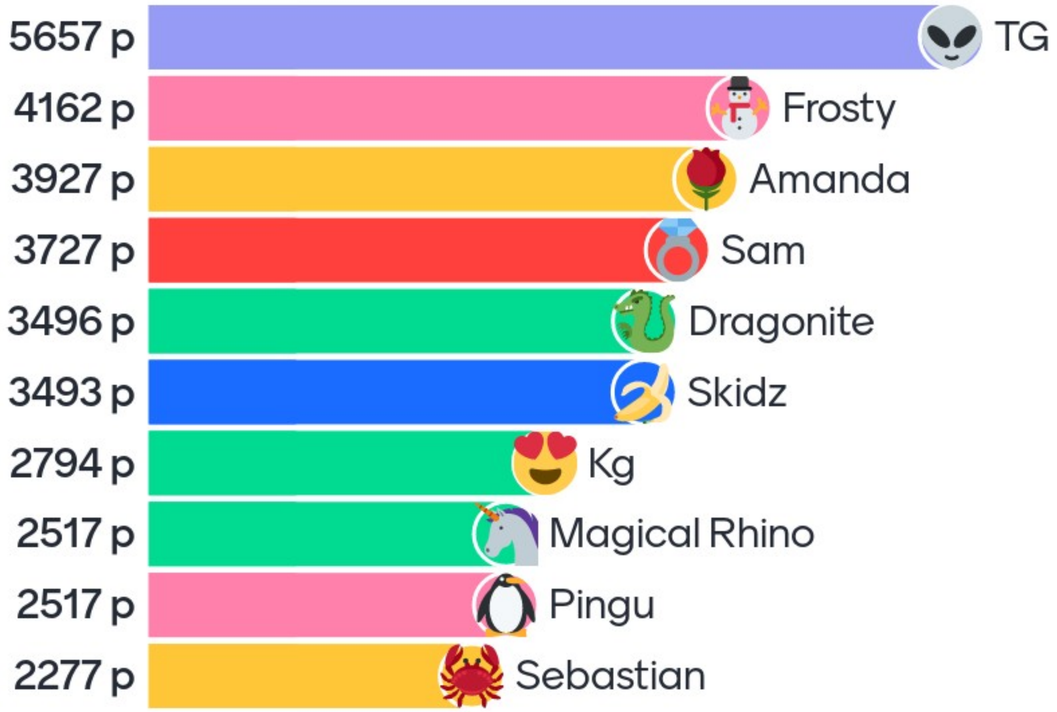
Sleeping much of the day. Not eating much and has lost a lot of weight.

HTN, CABGx4, angina ongoing

Metoprolol 100 bid, nitro patch 0.6 on 12/ off 12, ramipril 5 daily

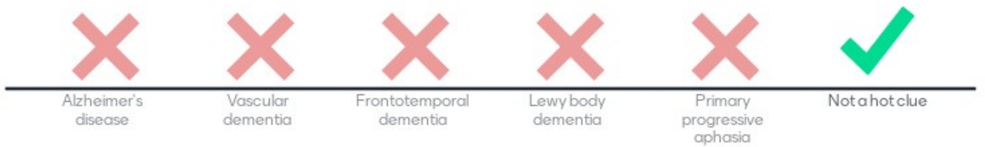
What stage of dementia is this person living with?

Leaderboard



Mentimeter

Based on the current presentation what is the most likely diagnosis?



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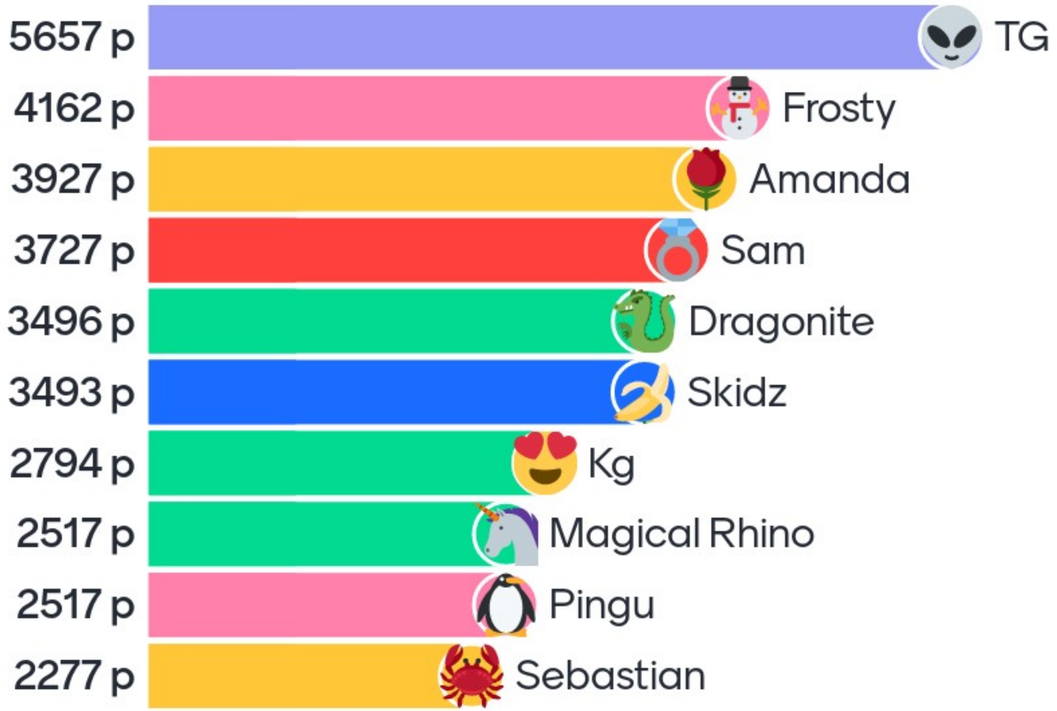

RISKS VS. BENEFITS OF CHANGING THE CLINICAL SYNDROME DIAGNOSIS

- I am cautious about ever changing the clinical syndrome diagnosis because it may not be clinically helpful
- **In the later stages of dementia the syndromes overlap and converge as most of the brain starts to be affected**

Risks	Benefits
Give the impression past treatment decisions were "wrong" and the course of dementia progression could have been changed	May identify people at higher risk of medication sensitivity (antipsychotic risks)
Undermine confidence in past health care providers	Can provide clarity if no opinion has ever been given. Validates the changes "are real"
Inappropriately increase the fear about a genetic risk factor in the family	
Causes confusion among family members (and for the patient)	

COMPONENTS OF A DEMENTIA DESCRIPTION

When describing a person with cognitive impairment:

- Dementia yes/no (Mild Cognitive Impairment?)
- Clinical subtype
- Stage

CONCLUSIONS

Alzheimer-type dementia is Major Neurocognitive disorder due to Alzheimer disease

- Classically non-cueable short term memory impairment

Subcortical dementias including microvascular dementia and Lewy Body dementia may have sparing of short-term memory

- Microvascular dementia may do far less than they say they do
- Lewy body dementia may have prominent good times and bad times and need long appointments due to physical and cognitive slowing

Without a diagnosis patients and families will not understand the need to anticipate functional decline and there will be an increased risk of crisis

When clinically describing dementia include:

- Dementia diagnosis
- Most likely etiology or etiologies
- Stage

MOST USEFUL REFERENCE/RESOURCE

www.Alzheimer.ca

- What is Alzheimer's disease? | Alzheimer Society of Canada
- Other types of dementia | Alzheimer Society of Canada
- https://alzheimer.ca/en/help-support/im-caring-person-living-dementia/what-expect-persons-dementia-progresses

Thank you for joining!

- elizabeth.rhynold@saskhealthauthority.ca
- What else do you need to do your work close to patient home communities?
- Questions?

Do you think you will feel more comfortable giving an etiliology and stage of dementia?

What did you gain? What do you still need?